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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

STRIEB, MICHAEL A

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/559,830	Applicant(s) MINAKATA ET AL.	
	Examiner MICHAEL A. STRIEB	Art Unit 2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Applicant's amendment filed June 2, 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 30-40 is/are pending in the application.
- 4a) Of the above claim(s) 6-28, 32 and 33 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37, 39 and 40 is/are allowed.
- 6) ☒ Claim(s) 1-5, and 34 is/are rejected.
- 7) ☒ Claim(s) 30, 31, 35, 36, 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 38 is objected to because of the following informalities: the claim reads in part "...and at least one positive lens is positioned in said first lens group and satisfies the following condition:...". Examiner suspects that this phrase contains a typographical error and should likely read "...and at least one positive lens is positioned in said second lens group and satisfies the following condition:...". Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al (US 4,690,513).

Regarding **claim 1**, Takahashi et al disclose a zoom optical system comprising, in order from an object side thereof, a first lens group having positive refracting power, a second lens group having negative refracting power, a third lens group having positive refracting power, and a fourth lens group having positive refracting power (column 1,

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lines 64-67), wherein said second lens group or said fourth lens group includes at least one one-piece lens (column 2, lines 44-51).

Claim Rejections - 35 USC § 103

4. The preceding rejection of claim 1 under 35 USC 102 is valid. The following rejections under 35 USC 103 are presented in order to expedite prosecution.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 5, 30-31, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (US 4,690,513) in view of Marvin et al (US 2,908,209).

Regarding **claim 1** Takahashi et al disclose a zoom optical system comprising, in order from an object side thereof, a first lens group having positive refracting power, a second lens group having negative refracting power, a third lens group having positive refracting power, and a fourth lens group having positive refracting power (column 1, lines 64-67), wherein said second lens group or said fourth lens group includes at least one one-piece lens (column 2, lines 44-51).

Takahashi et al do not disclose wherein at least one lens is formed by molding of a first lens blank that provides a surface including at least an optical function surface

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after molding, and a second lens blank that provides a surface other than said surface including at least an optical function surface after molding, wherein the first lens blank and the second lens blank are integrated into a one-piece lens.

Marvin et al disclose wherein at least one lens is formed by molding of a first lens blank that provides a surface including at least an optical function surface after molding, and a second lens blank that provides a surface other than said surface including at least an optical function surface after molding, wherein the first lens blank and the second lens blank are integrated into a one-piece lens (column 4, lines 2-16).

At the time of the invention, it would have been obvious to a person having ordinary skill in the art to combine Marvin et al with Takahashi et al. The motivation would have been to provide for a lens that allows the passage of light where desired while providing a lens support that prevents edge effects from unwanted leakage of light.

Therefore, it would have been obvious to combine Marvin et al with Takahashi et al to obtain the invention as disclosed in claim 1.

Regarding **claim 5**, Takahashi et al in combination with Marvin et al disclose all of the limitations as applied to claim 1 above.

Further, Takahashi et al disclose a condition pertaining to the thickness of the lens (column 10, lines 28-35; Numerical Examples 1-6). The range given in the claim optimizes values for the given variables. At the time of the invention, it would have been obvious for a person of ordinary skill in the art to choose from a finite number of predictable solutions. If this leads to the anticipated success, it is likely the product of

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ordinary skill and common sense. It would be obvious for a person of ordinary skill to pursue the range option disclosed in the claim, so as to reduce the weight of the lens.

Regarding **claim 34**, Takahashi et al in combination with Marvin et al disclose all of the limitations as applied to claim 1 above.

Further, Takahashi et al discloses an electronic image pickup device located on an image side of the zoom optical system (column 6, lines 14-15).

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al in view of Marvin et al and in further view of Nakano et al (JP 2003-248106).

Regarding **claim 2**, Takahashi et al in combination with Marvin et al disclose all of the limitations as applied to claim 1 above.

Takahashi et al in combination with Marvin et al do not disclose wherein second lens blank has shading capability.

Nakano et al discloses wherein second lens blank has shading capability (paragraphs 0008-0009).

At the time of the invention, it would have been obvious to a person having ordinary skill in the art to combine Nakano et al with Takahashi et al and Marvin et al. The motivation would have been to more accurately direct the light beam without side effects.

Therefore, it would have been obvious to combine Nakano et al with Takahashi et al and Marvin et al to obtain the invention as disclosed in claim 2.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al in view of Marvin et al and in further view of Billingsley et al (US 5,812,317).

Regarding **claim 3**, Takahashi et al in combination with Marvin et al disclose all of the limitations as applied to claim 1 above.

Takahashi et al in combination with Marvin et al do not disclose wherein said second lens blank is metal, cermet or ceramic.

Billingsley et al disclose wherein lenses are ceramic (column 3, lines 60-65).

At the time of the invention, it would have been obvious to a person having ordinary skill in the art to combine Billingsley et al with Takahashi et al and Marvin et al. The motivation would have been to provide for a more durable lens.

Therefore, it would have been obvious to combine Billingsley et al with Takahashi et al and Marvin et al to obtain the invention as disclosed in claim 3.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al in view of Marvin et al and in further view of Kweon et al (US 6,107,396).

Regarding **claim 4**, Takahashi et al in combination with Marvin et al disclose the invention as applied in claim 1 above.

Takahashi et al in combination with Marvin et al do not disclose wherein an organic-inorganic composite material is used as an optical material for at least one optical element that forms a part of said zoom optical system.

Kweon et al disclose wherein an organic-inorganic composite material is used as an optical material for at least one optical element that forms a part of said zoom optical system. (column 3, lines 10-15).

At the time of the invention, it would have been obvious to a person having ordinary skill in the art to combine Kweon et al with Takahashi et al and Marvin et al. The motivation would have been to use a material that is readily available and common in the art.

Therefore it would have been obvious to combine Kweon et al with Takahashi et al and Marvin et al to obtain the invention as discloses in claim 4.

Allowable Subject Matter

10. Claims 30-31 and 35-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claim 30**, Takahashi et al in combination with Marvin et al disclose all of the limitations as applied to claim 1 above.

However, Takahashi et al in combination with Marvin et al do not disclose wherein at least one positive lens is positioned in said first lens group and satisfies the following condition:

$$0.1 < HH1/\Phi1 < 20$$

where HH1 is a principal point spacing (mm) of the positive lens in the first lens group and $\Phi1$ is a refracting power of the positive lens in the first lens group.

Regarding **claim 31**, Takahashi et al in combination with Marvin et al disclose all of the limitations as applied to claim 1 above.

However, Takahashi et al in combination with Marvin et al do not disclose wherein at least one positive lens is positioned in said second lens group and satisfies the following condition:

$$0.1 < HH2/\Phi2 < 15$$

where HH2 is a principal point spacing (mm) of the positive lens in the second lens group and $\Phi2$ is a refracting power of the positive lens in the second lens group.

Regarding **claim 35**, Takahashi et al in combination with Marvin et al disclose all of the limitations as applied to claim 1 above.

However, Takahashi et al in combination with Marvin et al do not disclose wherein at least one positive lens is positioned in said third lens group and satisfies the following condition:

$$0.1 < HH3/\Phi3 < 8$$

where HH3 is a principal point spacing (mm) of the positive lens in the third lens group and $\Phi3$ is a refracting power of the positive lens in the third lens group.

Regarding **claim 36**, Takahashi et al in combination with Marvin et al disclose all of the limitations as applied to claim 1 above.

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However, Takahashi et al in combination with Marvin et al do not disclose wherein at least one positive lens is positioned in said fourth lens group and satisfies the following condition:

$$0.1 < HH4 / \Phi 4 < 10$$

where HH4 is a principal point spacing (mm) of the positive lens in the fourth lens group and $\Phi 4$ is a refracting power of the positive lens in the fourth lens group.

Regarding **claim 38**, Takahashi et al discloses a zoom optical system comprising, in order from an object side thereof, a first lens group having positive refracting power, a second lens group having negative refracting power, a third lens group having positive refracting power, and a fourth lens group having positive refracting power.

Marvin et al disclose wherein at least one lens is formed by molding of a first lens blank that provides a surface including at least an optical function surface after molding, and a second lens blank that provides a surface other than said surface including at least an optical function surface after molding, wherein the first lens blank and the second lens blank are integrated into a one-piece lens (column 4, lines 2-16).

However, the combination of Takahashi et al and Marvin et al does not disclose at least one positive lens positioned in said first lens group that satisfies the following condition:

$$0.5 < HH2 / \Phi 2 < 7$$

where HH2 is a principal point spacing (mm) of the positive lens in the second lens group and $\Phi 2$ is a refracting power of the positive lens in the second lens group.

On the assumption that the objection to this claim, as made above, is valid, the Examiner notes that the combination of Takahashi et al and Marvin et al does not disclose at least one positive lens positioned in said second lens group that satisfies the following condition:

$$0.5 < HH2 / \Phi 2 < 7$$

where HH2 is a principal point spacing (mm) of the positive lens in the second lens group and $\Phi 2$ is a refracting power of the positive lens in the second lens group. Should the claim be rewritten to overcome the objection noted above, this claim would be considered allowable.

11. Claims 37 and 39-40 are allowed.

Regarding **claim 37**, Takahashi et al discloses a zoom optical system comprising, in order from an object side thereof, a first lens group having positive refracting power, a second lens group having negative refracting power, a third lens group having positive refracting power, and a fourth lens group having positive refracting power.

Marvin et al disclose wherein at least one lens is formed by molding of a first lens blank that provides a surface including at least an optical function surface after molding, and a second lens blank that provides a surface other than said surface including at least an optical function surface after molding, wherein the first lens blank and the second lens blank are integrated into a one-piece lens (column 4, lines 2-16).

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However, the combination of Takahashi et al and Marvin et al does not disclose at least one positive lens positioned in said first lens group that satisfies the following condition:

$$0.1 < HH1 / \Phi 1 < 20$$

where HH1 is a principal point spacing (mm) of the positive lens in the first lens group and $\Phi 1$ is a refracting power of the positive lens in the first lens group.

Regarding **claim 39**, Takahashi et al discloses a zoom optical system comprising, in order from an object side thereof, a first lens group having positive refracting power, a second lens group having negative refracting power, a third lens group having positive refracting power, and a fourth lens group having positive refracting power.

Marvin et al disclose wherein at least one lens is formed by molding of a first lens blank that provides a surface including at least an optical function surface after molding, and a second lens blank that provides a surface other than said surface including at least an optical function surface after molding, wherein the first lens blank and the second lens blank are integrated into a one-piece lens (column 4, lines 2-16).

However, the combination of Takahashi et al and Marvin et al does not disclose at least one positive lens positioned in said third lens group that satisfies the following condition:

$$0.1 < HH3 / \Phi 3 < 8$$

where HH3 is a principal point spacing (mm) of the positive lens in the third lens group and $\Phi 3$ is a refracting power of the positive lens in the third lens group.

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Regarding **claim 40**, Takahashi et al discloses a zoom optical system comprising, in order from an object side thereof, a first lens group having positive refracting power, a second lens group having negative refracting power, a third lens group having positive refracting power, and a fourth lens group having positive refracting power.

Marvin et al disclose wherein at least one lens is formed by molding of a first lens blank that provides a surface including at least an optical function surface after molding, and a second lens blank that provides a surface other than said surface including at least an optical function surface after molding, wherein the first lens blank and the second lens blank are integrated into a one-piece lens (column 4, lines 2-16).

However, the combination of Takahashi et al and Marvin et al does not disclose at least one positive lens positioned in said fourth lens group that satisfies the following condition:

$$0.1 < HH4 / \Phi 4 < 8$$

where HH4 is a principal point spacing (mm) of the positive lens in the fourth lens group and $\Phi 4$ is a refracting power of the positive lens in the fourth lens group.

Response to Arguments

12. Applicant's arguments with respect to claims 1-5, 30-31, and 34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any response to this office action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand - delivered responses should be brought to:

Customer Service Window
Randolph Building
401 Dulany Street

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL A. STRIEB whose telephone number is

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(571)270-3528. The examiner can normally be reached on Monday-Friday 8am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on (571) 272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher E Mahoney/
Primary Examiner, Art Unit 2862

MAS